Respiratory Medicine CME 3 (2010) 101–102

Contents lists available at ScienceDirect

Respiratory Medicine CME

journal homepage: www.elsevier.com/locate/rmedc

Case Report

An unusual accessory fissure in the right upper lobe

K. Gowrinath [a,*], Rahul Magazine [a], Chandrakant M. Shetty [b], Paresh Desai [b]

[a] Department of Pulmonary Medicine, Kasturba Medical College, Manipal-576104, Karnataka, India
[b] Department of Radiology & Imaging Sciences, Kasturba Medical College, Manipal-576104, Karnataka, India

ARTICLE INFO

Article history:
Received 5 April 2009
Accepted 9 April 2009

Keywords:
Accessory fissure
Chronic obstructive pulmonary disease
Computed tomography of chest
Azygos fissure

ABSTRACT

An accessory fissure not due to anomalous course of azygos vein in the right upper lobe is rarely documented. We report such an accessory fissure between the apical and posterior segments of right upper lobe through computed tomographic (CT) scan of chest in a case of chronic obstructive pulmonary disease. A contrast enhanced CT scan study of chest is useful to determine whether the accessory fissure in the right upper lobe is an azygos fissure or not.

1. Introduction

An accessory fissure is a cleft of varying depth, lined by visceral pleura in the outer surface of the lung and appears as thin white line in unusual locations through chest radiographic/computed tomographic (CT) studies. Anatomically accessory fissures are more common than their approximate rates of detection through conventional chest radiographs (10%) and computed tomographic scans (20%) respectively.[1] An accessory fissure was recognized most frequently within the lower lobes[2] and non-azygotic accessory fissure in the right upper lobe is rare. We report an unusual accessory fissure in the right upper lobe.

2. Case report

A 58-year-old male smoker was admitted into our inpatient department with a history of recurrent breathlessness and cough for the past five years. Based upon the history and clinical examination, a provisional diagnosis of chronic obstructive pulmonary disease (COPD) was made. A computerized chest radiograph was reported as normal. Spirometry showed moderately severe obstructive defect with poor reversibility. Arterial blood gases were normal. Trans-thoracic echocardiography showed mild pulmonary arterial hypertension. Different planes of CT scan of chest (Fig. 1A–C) showed bilateral apical bullous lesions and an accessory fissure between the apical and posterior segments in the right upper lobe. Initially, the accessory fissure appeared like an azygos fissure but contrast enhanced CT study showed the normal location and course of azygos vein within mediastinum (Fig. 2). The possibility of wall of a bulla being mistaken as accessory fissure was considered but lung parenchyma was evident on either side of the curvilinear opacity. The curvilinear opacity in the right upper lobe was later reported independently as an accessory fissure by the two radiologists of our institute. Patient was discharged after he responded well to treatment.

3. Discussion

Accessory fissures are congenital anomalies within lung parenchyma and result when spaces between lobes fail to obliterate. Accessory fissures may also occur within any one of the lobes and separate any segment or subsegment of the lung partly or completely.[3] In our patient, the accessory fissure separated the apical and posterior segment of right upper lobe. Accessory fissures were detected in 5.7% cases; more frequently on right side.[4] The non-azygos accessory fissure in the right upper lobe is rare and the more frequently recognized accessory fissures include azygos fissure, the inferior accessory fissure, the superior accessory fissure and the left minor fissure.[5] High resolution CT scan of chest documented inferior accessory fissure in 8.6%, superior accessory in 4.6% and azygos fissure in 1.2% of cases.[6] In our patient, the contrast enhanced study of mediastinal structures during CT scan

* Corresponding author. Tel.: +91 820 2922028; fax: +91 820 2571934.
E-mail address: drkgowrinath@gmail.com (K. Gowrinath).

1755-0017/$36.00 © 2009 Elsevier Ltd. All rights reserved.
doi:10.1016/j.rmedc.2009.04.007

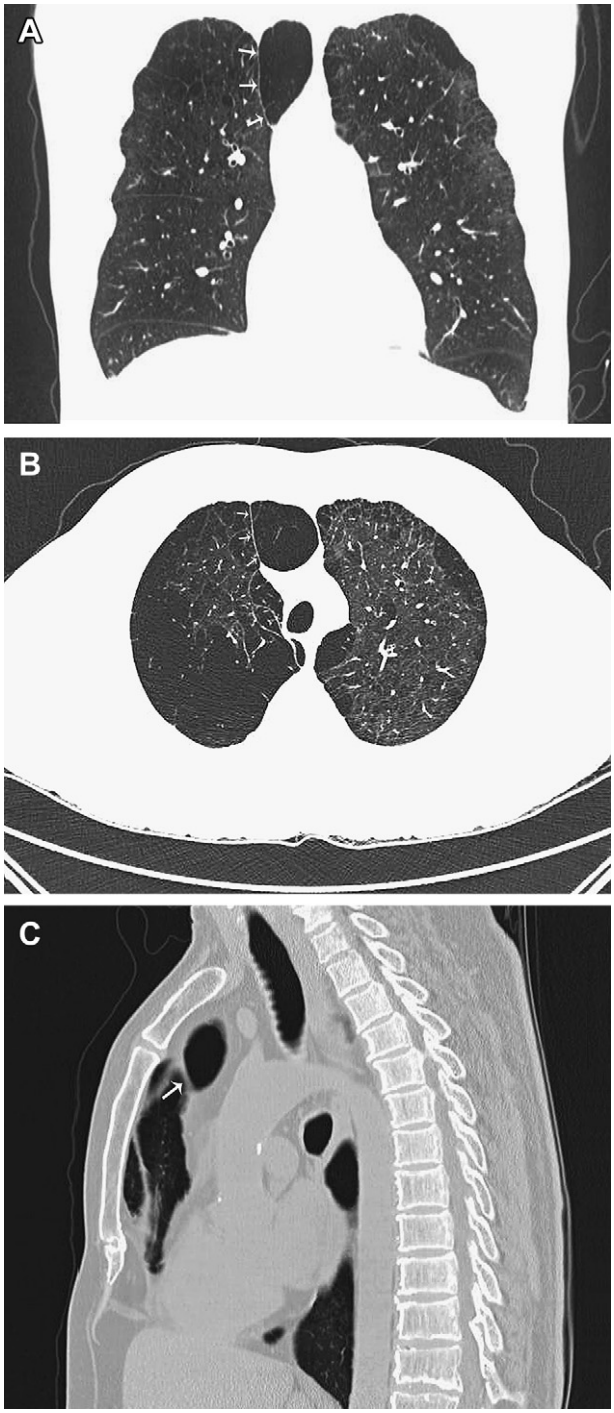

Fig. 1. (A) CT scan of chest (Coronal plane) showing the accessory fissure and bilateral apical bullous lesions (Three white arrows). (B) CT scan of chest (Axial plane) showing apical bullous lesions and an accessory fissure with lung parenchyma on either side of it (Three white arrows). (C) CT scan of chest (Lateral plane) showing the accessory fissure (Single white arrow).

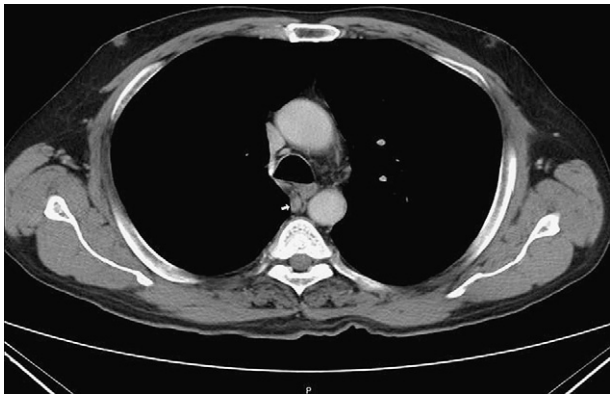

Fig. 2. Contrast enhanced axial plane of CT scan of chest showing the normal location of azygos vein at tracheobronchial angle (Single white arrow).

of chest helped to detect the normal location and course of the azygos vein. We are not aware of any previous similar report in the literature. Usually an accessory fissure visible through CT scan of chest is ignored as being clinically insignificant. But occasionally, the location of an accessory fissure may cause diagnostic confusion as it can alter the spread of disease within the lung, typical appearance of collapse or pleural effusion.[7] In conclusion, we have reported occurrence of an unusual accessory fissure in the right upper lobe and the contrast enhanced CT scan of chest as a useful study to differentiate it from azygos fissure to avoid interpretation error.

Conflict of interest

None of the authors have a conflict of interest to declare in relation to this work.

References

1. Godwin JD, Tarver RD. Accessory fissures of the lung. *Am J Roentgenol AJR* 1985;**144**:39–47.
2. Frija J, Naajib J, David M, Hacein-Bey L, Yana C, Laval-Jeantet M. Incomplete and accessory pulmonary fissures studied by high resolution X-ray computed tomography. *J Radiol* 1988;**69**:163–70.
3. Felson B. *Chest roentgenology*. Philadelphia: W.B. Saunders company; 1973.
4. Mahmut M, Nishitani H. Evaluation of pulmonary lobe variations using Multidetector row Computed Tomography. *J Comput Assist Tomogr* 2007;**31**: 956–60.
5. Armstrong P. The normal chest. In: Armstrong P, Wilson AG, Dee P, Hansell DM, editors. *Imaging of the diseases of the chest*. London: Mosby; 2000. p. pp21–62.
6. Aziz A, Ashizawa K, Ngaoki K, Hayashi K. High resolution CT anatomy of pulmonary fissures. *J Thorac Imaging* 2004;**19**:186–91.
7. Fraser RS, Muller NL, Colman N, Pare PP. *Fraser and Pare's diagnostic diseases of the chest*. 4th ed. Philadelphia: WB Saunders company; 1999.